

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Priority Application Serial No. 09/717,476
Priority Filing Date November 20, 2000
Inventor..... Harry Rosenberg, et al.
Assignee..... The Alta Group, Inc.
Priority Group Art Unit 2818
Priority Examiner P. Dang
Attorney's Docket No. 34593 CON.1
Title: Tantalum Sputtering Target and Method of Manufacture

PRELIMINARY AMENDMENT

To: Box Patent Application
 Attn: Priority Art Unit 2818
 Assistant Commissioner for Patents
 Washington, D.C. 20231

From: James E. Lake (Tel. 509-624-4276; Fax 509-838-3424)
 Wells, St. John, Roberts, Gregory & Matkin P.S.
 601 W. First Avenue, Suite 1300
 Spokane, WA 99201-3828

AMENDMENTS

In the Specification

At p. 1, before the "Technical Field" section, insert

--RELATED PATENT DATA

This patent resulted from a continuation application of U.S. Patent Application Serial No. 09/717,476, filed on November 20, 2000, which resulted from a divisional application of U.S. Patent Application Serial No. 09/316,777, filed on May 21, 1999, which resulted from a provisional application of U.S. Patent Application Serial No. 60/086,868, filed on May 27, 1998.--

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In The Claims

Please cancel claims 1-30 without prejudice, and add new claims 31-53.

31. A layer comprising high purity tantalum, less than about 500 ppm, by weight, total metallic impurities, and less than about 50 ppm, by weight, tungsten or molybdenum.
32. The layer of claim 31 wherein the layer is formed by sputter deposition.
33. A capacitor comprising high purity tantalum comprising tantalum, less than about 500 ppm, by weight, total metallic impurities, and less than about 50 ppm, by weight, tungsten or molybdenum.
34. The capacitor of claim 33 wherein the high purity tantalum is formed in the capacitor by sputter deposition.
35. A sputtering target blank comprising tantalum, less than 500 ppm by weight (ppmw) total metallic impurities, less than or equal to 50 ppmw molybdenum or tungsten, and less than about 100 ppmw oxygen.
36. The blank of claim 35 comprising less than 5 ppmw total of molybdenum and tungsten.
37. The blank of claim 35 comprising less than 2 ppmw total of molybdenum and tungsten.
38. The blank of claim 35 comprising less than 25 ppmw of oxygen.

39. The blank of claim 35 comprising less than 10 ppb by weight (ppbw) each of uranium and thorium.
40. A sputtering target blank comprising tantalum, less than 500 ppmw total metallic impurities, less than 5 ppmw total of molybdenum and tungsten, less than about 100 ppmw oxygen, and less than or equal to 10 ppbw each of uranium and thorium.
41. A sputtering target blank comprising tantalum, less than 500 ppm by weight (ppmw) total metallic impurities, less than 2 ppmw total of molybdenum and tungsten, and less than 25 ppmw oxygen.
42. A sputtering target comprising the blank of claim 35.
43. A sputtering target comprising the blank of claim 40.
44. A sputtering target comprising the blank of claim 41.
45. A material comprising tantalum, at least the tantalum being sputter deposited from the blank of claim 35.
46. The material of claim 45 consisting essentially of Ta metal, Ta₂O₅, or TaN.
47. A material comprising tantalum, at least the tantalum being sputter deposited from the blank of claim 40.
48. The material of claim 47 consisting essentially of Ta metal, Ta₂O₅, or TaN.
49. A material comprising tantalum, at least the tantalum being sputter deposited from the blank of claim 41.

50. The material of claim 49 consisting essentially of Ta metal, Ta₂O₅, or TaN.
51. A capacitor comprising the material of claim 45.
52. A capacitor comprising the material of claim 47.
53. A capacitor comprising the material of claim 49.

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REMARKS

Claims 1-30 are canceled. New claims 31-53 are pending in the application.

Examination of claims 31-53 is requested.

Respectfully submitted,

Dated: 15 Jan 2002

By: James E. Lake
James E. Lake
Reg. No. 44,854

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